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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,060	02/20/2004	Esin Gulari	10114-018	6767

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EXAMINER

SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
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1714

MAIL DATE	DELIVERY MODE
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08/23/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/783,060	Applicant(s) GULARI ET AL.	
	Examiner Callie E. Shosho	Art Unit 1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 19 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____ |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :5/8/06, 3/29/06, 12/15/05, 7/26/04, 7/12/04.

DETAILED ACTION

1. It is noted that the examiner of record has changed. The new examiner is Callie Shosho.

Election/Restrictions

2. Applicant's election without traverse of Group I, claims 1-18 in the reply filed on 2/9/07 is acknowledged.

3. Claims 19-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Election was made **without** traverse in the reply filed on 2/9/07.

Oath/Declaration

4. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not identify the mailing address of each inventor. A mailing address is an address at which an inventor customarily receives his or her mail and may be either a home or business address. The mailing address should include the ZIP Code designation. The mailing address may be provided in an application data sheet or a supplemental oath or declaration. See 37 CFR 1.63(c) and 37 CFR 1.76.

Specifically, there is no post office address provided for inventor Esin Gulari.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1-2, 4, 6, and 10-16 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-10 and 13-14 of U.S. Patent No. 7,157,517 (Gulari et al.). Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following explanation.

Gulari et al. disclose method of delaminating a graphite structure comprising diffusing a coating agent that is a polymer in a supercritical fluid such as carbon dioxide between layered particles of a graphite structure and catastrophically depressurizing the supercritical fluid to form delaminated graphite particles. The graphite in the form of a powder with average particle size of 0.5- 3 μm . The diffusing the supercritical fluid and graphite is performed for 10 minutes to 24 hours while catastrophically depressurizing the contacted graphite particles is performed between 5 seconds and 30 seconds. The coating agent is polydimethylsiloxane which is identical to that utilized in the present invention. The weight ratio of the graphite to the coating agent is at least about 1:10. Although there is no disclosure that catastrophically depressurizing the delaminated particles reduces reaggregation of the silicate, given that Gulari et al. disclose method as presently claimed including catastrophically depressurizing supercritical fluid as presently claimed, it is clear that such catastrophic depressurizing would intrinsically reduce reaggregation of the silicate.

The only difference between Gulari et al. and the present claimed invention is that the present claims are drawn to method of delaminating aggregated particles of natural silicate,

nanoplatelet, nanofiber, or nanotube while Gulari et al. is drawn to method of delaminating graphite structure.

However, it would have been obvious to one of ordinary skill in the art that the broad disclosure of aggregated particles of natural silicate, nanoplatelet, nanofiber, or nanotube as presently claimed clearly encompasses graphite. That is, graphite is a specific type of aggregated particle as presently claimed.

In light of the above, it therefore would have been obvious to one of ordinary skill in the art that graphite is a specific type of aggregated particle as presently claimed, and thus, one of ordinary skill in the art would have arrived at the present invention.

7. Claims 1-2, 4, 6, and 10-16 are directed to an invention not patentably distinct from claims 1-10 and 13-14 of commonly assigned U.S. 7,157,517 (Gulari et al.). Specifically, although the conflicting claims are not identical they are not patentably distinct for the reasons set forth in paragraph 6 above.

8. The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP Chapter 2300). Commonly assigned U.S. 7,157,517 (Gulari et al.), discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to

resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

9. Claims 1-2, 4, 6, and 10-16 are rejected under 35 U.S.C. 103(a) as being obvious over U.S. 7,157,517 (Gulari et al.).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the

reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

For an explanation of the rejection see paragraph 6 above.

10. Claims 1, 4, and 6 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2 of U.S. Patent No. 6,753,360 (Mielewski et al.). Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following explanation.

Mielewski et al. disclose method of generating a reinforced polymer comprising mixing the layered silicate with a polymer to form a treatable silicate-polymer mixture which is contacted with supercritical fluid to exfoliate the silicate and depressurizing the contacted mixture to exfoliate, i.e. delaminate, the silicate particles.

The difference between Mielewski et al. and the present claimed invention is the requirement in the claims of (a) catastrophically depressurizing and (b) specific method.

With respect to difference (a), Mielewski et al. disclose depressurizing the contacted mixture that comprises supercritical fluid in order to exfoliate the silicate, however, there is no disclosure of catastrophically depressurizing.

Applicants' attention is drawn to MPEP 804 where it is disclosed that "the specification can always be used as a dictionary to learn the meaning of a term in a patent claim." *In re Boylan*, 392 F.2d 1017, 157 USPQ 370 (CCPA 1968). Further, those portions of the specification which provide support for the patent claims may also be examined and considered when

addressing the issue of whether a claim in an application defines an obvious variation of an invention claimed in the patent. (underlining added by examiner for emphasis) *In re Vogel*, 422 F.2d 438,164 USPQ 619,622 (CCPA 1970).

Consistent with the above underlined portion of the MPEP citation, attention is drawn to col.4, lines 21-24 of Mielewski et al. that discloses catastrophically depressurizing the contacted mixture to exfoliate the silicate particles so that the particles are substantially dispersed.

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to catastrophically depressurize the contacted mixture of silicate, polymer, and supercritical fluid in Mielewski et al. in order to exfoliate the silicate particles so that the particles are substantially dispersed, and thereby arrive at the claimed invention.

With respect to difference (b), it is noted that the present claims are drawn to a method “of delaminating particles of natural silicate, nanoplatelet, nanofiber, or nanotube structure” while Mielewski et al. is drawn to method “of generating a reinforced polymer”. However, regardless of what Mielewski et al. refers to his end product as, given that Mielewski et al. disclose method as presently claimed and given that it is clear that the method of Mielewski et al. produces same product as that presently claimed, i.e. exfoliated or delaminated silicate, one of ordinary skill in the art would have arrived at the present invention.

11. Claims 1, 4, and 6 are directed to an invention not patentably distinct from claims 1-2 of commonly assigned U.S. Patent No. 6,753,360 (Mielewski et al.). Specifically, although the

conflicting claims are not identical they are not patentably distinct for the reasons set forth in paragraph 10 above.

12. The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP Chapter 2300). Commonly assigned U.S. Patent No. 6,753,360 (Mielewski et al.), discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

13. Claims 1, 4, and 6 are rejected under 35 U.S.C. 103(a) as being obvious over U.S. Patent No. 6,753,360 (Mielewski et al.).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C.

102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

For an explanation of the rejection see paragraph 10 above.

Claim Rejections - 35 USC § 112

14. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

15. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, 15, 16, and 18 each recite “catastrophically depressurizing”. The scope of the claims is confusing given that it is not clear what is meant by “catastrophically” or how such catastrophically depressurizing is different from depressurizing. Clarification is requested.

Claim Rejections - 35 USC § 102

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

17. Claims 1, 4, 6-9, 10-11, and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Mielewski et al. (U.S. 6,753,360).

Mielewski et al. disclose method for delaminating layered silicate comprising mixing layered silicate with polymer, i.e. coating agent, contacting the mixture with supercritical fluid for 0.5 minutes to 10 hours, catastrophically depressurizing the mixture to exfoliate, i.e. delaminate, the layered silicate, and extruding the delaminated silicate. It is clear that extruding the delaminated silicate would inherently orient the silicate in uniaxial or multiaxial flow. It is disclosed that the diameter of the silicate is 50-2000 nm (col.2, lines 31-52, col.2, line 66-col.3, line 12, and col.4, lines 7-9, 14-17, 21-25, and 36-44). Although there is no disclosure that catastrophically depressurizing the delaminated particles reduces reaggregation of the silicate, given that Mielewski et al. disclose method as presently claimed including catastrophically

depressurizing supercritical fluid as presently claimed, it is clear that such catastrophic depressurizing would inherently reduce reaggregation of the silicate.

In light of the above, it is clear that Mielewski et al. anticipate the present claims.

18. Claims 1-6 and 10-16 rejected under 35 U.S.C. 102(e) as being anticipated by Gulari et al. (U.S. 7,157,517).

Gulari et al. disclose method of delaminating graphite structure with coating agent solubilized in a supercritical fluid comprising diffusing the coating agent in the supercritical fluid between the layered particles of the graphite followed by catastrophically depressurizing the supercritical fluid to form delaminated graphite particles. There is also disclosed method comprising diffusing layered graphite with coating agent solubilized in supercritical fluid to intercalate the coating agent between the layered graphite, catastrophically depressurizing the contacted graphite to exfoliate the contacted graphite comprising precipitating the coating agent from the supercritical fluid to deposit onto the graphite, and mixing the delaminated graphite particles with polymer using an extruder or injection molding machine to form graphite-polymer nanocomposite. It is disclosed that the critical fluid is CO₂ while the coating agent is polydimethylsiloxane. The graphite is in powder form and possesses size of 0.5-3 μm. It is further disclosed that the ratio of graphite to coating agent is at least about 0.1:10. The diffusing is performed for 10 minutes to 24 hours while the depressurizing is performed for 5-30 seconds. Given that Gulari et al. disclose use of coating agent identical to that utilized in the present invention as well as polymer to form the delaminated particle-polymer nanocomposite identical

to that utilized in the present invention, it is clear that the polymer is inherently miscible or immiscible relative to the coating agent (col.2, lines 45-65, col.3, lines 41-48, col.3, line 65- col.4, line 2, col.4, lines 10-23, 29-30, and 48-64, col.5, lines 35-40 and 51-64, and col.5, line 65- col.6, line 4). It is noted that graphite, as seen in Figure 1, has the same structure as the aggregated particles of the present invention (see Figure 1 of the present specification) and thus, it is clear that graphite is a aggregated structure as presently claimed. Further, although there is no disclosure that catastrophically depressurizing the delaminated particles reduces reaggregation of the silicate, given that Gulari et al. disclose method as presently claimed including catastrophically depressurizing supercritical fluid as presently claimed, it is clear that such catastrophic depressurizing would inherently reduce reaggregation of the silicate.

In light of the above, it is clear that Gulari et al. anticipate the present claims.

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

Art Unit: 1714

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

20. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

21. Claims 7-8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gulari et al. (U.S. 7,157,517) in view of Drzal et al. (U.S. 2004/0127621).

The disclosure with respect to Gulari et al. in paragraph 18 above is incorporated here by reference.

The difference between Gulari et al. and the present claimed invention is the requirement in the claims of applying an external field to the delaminated particles.

Drzal et al. disclose applying an electric field to graphite in order to orient the graphite in a preferred direction creating materials that are electrically or thermally conductive in one direction (paragraph 61).

In light of the motivation for applying electric field to graphite disclosed by Drzal et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to

apply electric field to the delaminated graphite of Gulari et al. in order to produce graphite with electrical or thermal conductivity, and thereby arrive at the claimed invention.

22. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gulari et al. (U.S. 7,157,517) in view of Drzal et al. (U.S. 2004/0127621).

Gulari et al. disclose method of delaminating graphite structure with coating agent solubilized in a supercritical fluid comprising diffusing the coating agent in the supercritical fluid between the layered particles of the graphite followed by catastrophically depressurizing the supercritical fluid to form delaminated graphite particles. There is also disclosed method comprising diffusing layered graphite with coating agent solubilized in supercritical fluid to intercalate the coating agent between the layered graphite, catastrophically depressurizing the contacted graphite to exfoliate the contacted graphite comprising precipitating the coating agent from the supercritical fluid to deposit onto the graphite, and mixing the delaminated graphite particles with polymer using an extruder or injection molding machine to form graphite-polymer nanocomposite. It is disclosed that the critical fluid is CO₂ while the coating agent is polydimethylsiloxane. The graphite is in powder form and possesses size of 0.5-3 μm. It is further disclosed that the ratio of graphite to coating agent is at least about 0.1:10. The diffusing is performed for 10 minutes to 24 hours while the depressurizing is performed for 5-30 seconds (col.2, lines 45-65, col.3, lines 41-48, col.3, line 65-col.4, line 2, col.4, lines 10-23, 29-30, and 48-64, col.5, lines 35-40, and col.5, line 65-col.6, line 4). It is noted that graphite, as seen in Figure 1, has the same structure as the aggregated particles of the present invention (see Figure 1

of the present specification) and thus, it is clear that graphite is a aggregated structure as presently claimed.

The difference between Gulari et al. and the present claimed invention is the requirement in the claims of applying an external field to the delaminated particles.

Drzal et al. disclose applying an electric field to graphite in order to orient the graphite in a preferred direction creating materials that are electrically or thermally conductive in one direction (paragraph 61).

In light of the motivation for applying electric field to graphite disclosed by Drzal et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to apply electric field to the delaminated graphite of Gulari et al. in order to produce graphite with electrical or thermal conductivity, and thereby arrive at the claimed invention.

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Jerome et al. (U.S. 2004/0106720), corresponding to EP 1247829, discloses method of preparing a polyester nanocomposite comprising mixing nanofiller onto at least one monomer and carrying out intercalative polymerization of the mixture in the presence of supercritical fluid, however, there is no disclosure of catastrophically depressurizing the supercritical fluid.

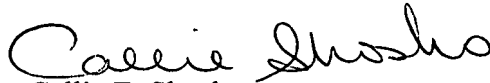
Manke et al. (U.S. 6,469,073) disclose method of delaminating a layered silicate comprising contacting the layered silicate with supercritical fluid and then catastrophically depressurizing, however, there is no disclosure of coating agent as presently claimed.

Art Unit: 1714

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
8/20/07